Spring 2014

Water Resources Systems Engineering - Technion

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TECHNION — Israel Institute of Technology
Environmental Engineering, Water and Agriculture
Faculty of Civil and Environmental Engineering

WATER RESOURCES SYSTEMS ENGINEERING (016203)
SPRING 2014

1. INSTRUCTORS

Lecturer: Associate Prof. Avi Ostfeld, Office hrs: Sunday 10:00 – 11:00, Rabin 610; Phone: 2782, 050-7726139 (cell); Email: ostfeld@tx.technion.ac.il
Teaching assistant: Rafi Schwartz, Office hrs: Thursday 12:30-13:30, Borovitz 326; Phone: 077-8875943; Email: t2rafi@gmail.com.

2. TEXT BOOKS

1. Water Resources Systems Planning and Analysis / Daniel P. Loucks, Jerry R. Stedinger, Douglas A. Haith
2. Water Resources Systems Analysis / Mohammad Karamouz, Ferenc Szidarovszky, Banafsheh Zahraie
3. Water Resources Handbook / Larry W. Mays (Ed.)
4. Water Resources Engineering / Larry W. Mays (Ed.)

3. PREREQUISITES

014004 System Analysis
014212 Introduction to Engineering Hydrology
014205 Hydraulics
014308 Basics of Environmental Engineering

4. TEACHING AND GRADES

- 2 hrs weekly lecture + 1 hr training (exercise)
- Grade structure: 50% homework, projects, reports + 50% final exam (closed book, lectures theory open questions + exercises)

5. TOPICS

1. INTRODUCTION
2. Reservoirs
SPA = Sequent Peak Algorithm
LDR = Linear Decision Rule
SLDR = Stochastic Linear Decision Rule
3. Water distribution systems
Simulation
Linear programming for branched networks least cost design
Looped water distribution systems, linear programming gradient (LPG), genetic algorithms, ant colony
Water quality in distribution systems, EPANET
4. Water resources systems selected example problems
Surface waters, Groundwater, Integrated systems